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**United States Patent** [19]**Reinhardt et al.**[11] **Patent Number:** **5,745,375**[45] **Date of Patent:** **Apr. 28, 1998**[54] **APPARATUS AND METHOD FOR CONTROLLING POWER USAGE**

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[73] Assignee: **Intel Corporation**, Santa Clara, Calif.[21] Appl. No.: **537,146**[22] Filed: **Sep. 29, 1995**[51] Int. Cl.<sup>6</sup> ..... **H02J 03/16**[52] U.S. Cl. .... **364/492; 395/750**[58] Field of Search ..... **364/492, 707; 395/750; 136/290, 293; 320/30, 43**[56] **References Cited****U.S. PATENT DOCUMENTS**

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A power control circuit and corresponding technique for reducing power consumption by an electronic device and thereby increasing performance. The power control circuit comprises a controller, a clock generation circuit and a power supply circuit. The controller detects whether a condition exists to scale the voltage and frequency of the electronic device and in response, signals the clock generation circuit to perform frequency scaling on the electronic device and the power supply circuit to perform voltage scaling on the electronic device. The condition may include a situation where the temperature of the electronic device is detected to have exceeded a thermal band. The condition may also include a situation where the electronic device is detected to be idle for a selected percentage of its run time.

**33 Claims, 4 Drawing Sheets**